

Substitute for form 1449/PTO				<i>Complete if Known</i>	
				Application Number	10/594,829
				Filing Date	December 19, 2007
				First Named Inventor	David R. Tabatadze
				Art Unit	1636
				Examiner Name	J. S. Ketter
Sheet	1	of	8	Attorney Docket Number	24028-015 NATLUS

U.S. PATENT DOCUMENTS					
Examiner Initials*	Cite No. ¹	Document Number	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
		Number-Kind Code ² (if known)			
A*	US-20020064876	05-30-2002	YOON		
B*	US-20020119570	08-29-2002	Yoon et al.		
C*	US-20030051270-A1	03-13-2003	Kmiec et al.		
D*	US-20030109476	06-12-2003	Kmiec et al.		
E*	US-20030196218	10-16-2003	ARNTZEN et al.		
F*	US-20030199091	10-23-2003	Kmiec et al.		
G*	US-20030217377-A1	11-20-2003	Kmiec et al.		
H*	US-20040014057-A1	01-22-2004	Kmiec et al.		
I*	US-20040023903	02-05-2004	Davis et al.		
J*	US-5,149,797	09-22-1992	Pederson et al.		
K*	US-5,565,350	10-15-1996	Kmiec		
L*	US-5,627,274	05-06-1997	Kole et al.		
M*	US-5,856,092	01-05-1999	Dale et al.		

FOREIGN PATENT DOCUMENTS					
Examiner Initials*	Cite No. ¹	Foreign Patent Document	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages Or Relevant Figures Appear
		Country Code ³ -Number ⁴ -Kind Code ⁵ (if known)			
	N	WO-9619587-A2	06-27-1996	Abbott Lab	T ⁶

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*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant. * CITE NO.: Those application(s) which are marked with a single asterisk (*) next to the Cite No. are not supplied (under 37 CFR 1.98(a)(2)(iii)) because that application was filed after June 30, 2003 or is available in the IFW. ¹ Applicant's unique citation designation number (optional). ² See Kinds Codes of USPTO Patent Documents at www.uspto.gov or MPEP 901.04. ³ Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). ⁴ For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. ⁵ Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. ⁶ Applicant is to place a check mark here if English language Translation is attached.

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NON PATENT LITERATURE DOCUMENTS			
Examiner Initials	Cite No. ¹	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.	T ²
	O	Agrawal et al., "Antisense and/or Immunostimulatory Oligonucleotide Therapeutics" <i>Curr. Cancer Drug Targets</i> , 1(3):197-209 (2001)	
	P	Agrawal et al., "Mixed Backbone Oligonucleotides: Improvement in Oligonucleotide-induced Toxicity In Vivo", <i>Antisense Nucleic Acid Drug Dev.</i> , 8(2):135-139 (1998)	
	Q	Agrawal et al., "Site-Specific Excision from RNA by RNase H and Mixed-Phosphate-Backbone Oligodeoxynucleotides", <i>Proc. Natl. Acad. Sci. USA</i> , 87:1401-1405 (1990)	
	R	Alexeev et al., "Simultaneous Targeted Alteration of the Tyrosinase and C-kit Genes by Single-Stranded Oligonucleotides", <i>Gene Therapy</i> , 9:1667-1675 (2002)	
	S	Alexeev et al., "Stable and Inheritable Changes in Genotype and Phenotype of Albino Melanocytes Induced by an RNA-DNA Oligonucleotide", <i>Nature Biotech.</i> , 16(13):1343-1346 (1998)	
	T	Andersen et al., "Mechanisms Underlying Targeted Gene Correction Using Chimeric RNA/DNA and Single-Stranded DNA Oligonucleotides", <i>J Mol. Med.</i> , 80:770-781 (2002)	
	U	Anderson et al., "Generation of cAMP-activated Chloride Currents by Expression of CFTR", <i>Science</i> , 251:679-682 (1991)	
	V	Arispe et al., "Direct Activation of Cystic Fibrosis Transmembrane Conductance Regulator Channels by 8-Cyclopentyl-1,3-dipropylxanthine (CPX) and 1,3-Diallyl-8-cyclohexylxanthine (DAX)", <i>J. Biol. Chem.</i> , 273:5727-3574 (1998)	
	W	Bear et al., "Purification and Functional Reconstitution of the Cystic Fibrosis Transmembrane Conductance Regulator (CFTR)", <i>Cell</i> , 68:809-818 (1992)	
	X	Bedwell et al., "Suppression of a CFTR Premature Stop Mutation in a Bronchial Epithelial Cell Line", <i>Nature Med.</i> , 3:1280-1284 (1997)	
	Y	Bernstein et al., "Role for a Bidentate Ribonuclease in the Initiation Step of RNA Interference", <i>Nature</i> , 409:363-366 (2001)	
	Z	Boucher et al., "Gene Therapy for Cystic Fibrosis Using E1-Deleted Adenovirus: A Phase I Trial in the Nasal Cavity", <i>Hum. Gene Ther.</i> , 5:615-639 (1994)	

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Sheet	3	of	8	Attorney Docket Number	24028-015 NATLUS

	AA	Breschel et al., "A Novel, Heritable, Expanding CTG Repeat in an Intron of the SEF2-1 Gene on Chromosome 18q21.1", <i>Human Molec. Gen.</i> , 6:1855-1863 (1997)	
	AB	Brown et al., "Chemical Chaperones Correct the Mutant Phenotype of the ΔF508 Cystic Fibrosis Transmembrane Conductance Regulator Protein", <i>Cell Stress & Chaperones</i> , 1:117-125 (1996)	
	AC	Burkard et al., "In the RNA World", New York: Cold Spring Harbor Press 675-680 (1999)	
	AD	Burke, "Genomic Medicine: Genomics as a Probe for Disease Biology", <i>N Eng. J. Med.</i> , 349:969-974 (2003)	
	AE	Cantiello et al., "External ATP and its Analogs Activate the Cystic Fibrosis Transmembrane Conductance Regulator by a Cyclic AMP-Independent Mechanism", <i>J. Biol. Chem.</i> , 269:11224-11232 (1994)	
	AF	Cheng et al., "Defective Intracellular Transport and Processing of CFTR is the Molecular Basis of Most Cysic Fibrosis", <i>Cell</i> , 63:827-834 (1990)	
	AG	Cole-Strauss et al., "Correction of the Mutation Responsible for Sickle Cell Anemia by an RNA-DNA Oligonucleotide", <i>Science</i> , 273:1386-1389 (1996)	
	AH	Crawford et al., "Immunocytochemical Localization of the Cystic Fibrosis Gene Product CFTR", <i>Proc. Natl. Acad. Sci. USA</i> , 88(20):9262-9266 (1991)	
	AI	Cutting, "Spectrums of Mutations in Cystic Fibrosis", <i>J. Bioenerg. Biomembr.</i> , 25:7-10 (1993)	
	AJ	Dechechchi et al., "Protein Kinase C Activates Chloride Conductance in C127 Cells Stably Expressing the Cystic Fibrosis Gene", <i>J. Biol. Chem.</i> , 268:11321-11325 (1993)	
	AK	Denning et al., "Processing of Mutant Cystic Fibrosis Transmembrane Conductance Regulator is Temperature-Sensitive", <i>Nature</i> , 358:761-764 (1992)	
	AL	Du et al., "Identification of <i>Aim-a</i> as the <i>underwhite</i> Mouse Mutant and its Transcriptional Regulation by MITF", <i>J. Biol. Chem.</i> , 277(1):402-406 (2002)	
	AM	Felsenfeld et al., "Formation of a Three-Stranded Polynucleotide Molecule", <i>J. Am. Chem. Soc.</i> , 79:2023-2024 (1957)	
	AN	Ferrie et al., "Development, Multiplexing, and Application of ARMS Tests for Common Mutations in the CFTR Gene", <i>Am. J. Hum. Genet.</i> , 51: 251-262 (1992)	
	AO	Fire et al., "Potent and Specific Genetic Inference by Double-Stranded RNA in <i>Caenorhabditis elegans</i> ", <i>Nature</i> , 391:806-811 (1998)	

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	AP	Gilfillan et al., "P67L: A Cystic Fibrosis Allele with Mild Effects Found at High Frequency in the Scottish Population", <i>J. Med. Genet.</i> , 35:122-125 (1998)	
	AQ	Grishok et al., "Genetic Requirements for Inheritance of RNAi in <i>C. elegans</i> ", <i>Science</i> , 287:2494-2497 (2000)	
	AR	Hammond et al., "An RNA-Directed Nuclease Mediates Post-Transcriptional Gene Silencing in <i>Drosophila</i> cells", <i>Nature</i> , 404:293-296 (2000)	
	AS	Hannon, "RNA Interference", <i>Nature</i> , 418:244-251 (2002)	
	AT	Harris et al., "Distribution and Consensus of Branch Point Signals in Eukaryotic Genes: A Computerized Statistical Analysis", <i>Nucleic Acid Res.</i> , 18:3015-3019 (1990)	
	AU	Igoucheva et al., "Targeted Gene Correction by Small Single-Stranded Oligonucleotides in Mammalian Cells", <i>Gene Therapy</i> , 8:91-399 (2001)	
	AV	Jurica et al., "Pre-mRNA Splicing", <i>Mol. Cell.</i> , 12(1):5-14 (2003)	
	AW	Kandimalla et al., "Toll-like Receptor 9: Modulation of Recognition and Cytokine Induction by Novel Synthetic CpG DNAs", <i>Biochemical Society Transactions</i> , 31:654-6358 (2003)	
	AX	Kerem et al., "Identification of the Cystic Fibrosis Gene: Genetic Analysis", <i>Science</i> , 245:1073-1080 (1989)	
	AY	Kleppe et al., "Studies on Polynucleotides", <i>J. Mol. Biol.</i> , 56(2):341-361 (1971)	
	AZ	Kmiec, "Targeted Gene Repair", <i>Clin. Invest.</i> , 112: 632-636 (2003)	
	BA	Knauert et al., "Triplex Forming Oligonucleotides: Sequence-Specific Tools for Gene Targeting", <i>Hum Mol Genet.</i> , 10:2243-2251 (2001)	
	BB	Kobayashi et al., "Benign Missense Variations in the Cystic Fibrosis Gene", <i>Am. J. Hum. Genet.</i> , 47:611-615 (1990)	
	BC	Krieg, "CpG Motifs: The Active Ingredient in Bacterial Extracts?", <i>Nat. Med.</i> , 9:831-835 (2003)	
	BD	Letsinger et al., "Use of a Steroid Cyclic Disulfide Anchor in Constructing Gold Nanoparticle-Oligonucleotide Conjugates", <i>Bioconj. Chem.</i> , 11:289-291 (2000)	
	BE	Li et al., "The cystic fibrosis mutation (F508) does not influence the chloride channel activity of CFTR", <i>Nature Genet.</i> , 3:311-316 (1993)	

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	BF	Liu et al., "Partial correction of endogenous F508 CFTR in human cystic fibrosis airway epithelia by spliceosome-mediated RNA trans-splicing", <i>Biotechnol.</i> , 20: 47-52 (2002)	
	BG	MacDonald et al., "A Novel Gene Containing a Trinucleotide Repeat That is Expanded and Unstable on Huntington's Disease Chromosomes", <i>Cell</i> , 72:971-983 (1993)	
	BH	Mansfield et al., "Repair of CFTR mRNA by Spliceosome-Mediated RNA Trans-Splicing", <i>Gene Ther.</i> , 7:1885-1895 (2000)	
	BI	McManus et al., "Gene Silencing in Mammals by Small Interfering RNAs", <i>Nat. Rev Genet.</i> , 3:737-747 (2003)	
	BJ	Metelev et al., "Study of Antisense Oligonucleotide Phosphorothioates Containing Segments of Oligodeoxynucleotides and 2'-o-methyloligonucleotides", <i>Bioorg. Med. Chem. Lett.</i> , 4:2929-2934 (1994)	
	BK	Montgomery et al., "RNA as a Target of Double-Stranded RNA-Mediated Genetic Interference in <i>aenorhabditis elegans</i> ", <i>Proc. Natl. Acad. Sci. USA</i> , 95:15502-15507 (1998)	
	BL	Nielsen, "Targeting Double Stranded DNA with Peptide Nucleic Acid (PNA)", <i>Curr. Med. Chem.</i> , 8:545-550 (2001)	
	BM	Onay et al., "Analysis of the CFTR Gene in Turkish Cystic Fibrosis Patients: Identification of Three Novel Mutations (3172de1AC, P1013L, and M1028I)", <i>Hum. Genet.</i> , 102:224-230 (1998)	
	BN	Padmapriya et al., "Large-Scale Synthesis, Purification, and Analysis of Oligodeoxynucleotide Phosphorothioates", <i>Antisense Res Dev.</i> , 4:185-199 (1994)	
	BO	Parekh-Olmedo et al., "Targeted Gene Repair in Mammalian Cells Using Chimeric RNA/DNA Oligonucleotides and Modified Single-Stranded Vectors", <i>Sci. STKE</i> , 73: PL1 (2001)	
	BP	Pasyk et al., "Mutant (δ F508) Cystic Fibrosis Transmembrane Conductance Regulator Cl- Channel Is Functional When Retained in Endoplasmic Reticulum of Mammalian Cells", <i>J. Biol. Chem.</i> , 270: 12347-12350 (1995)	
	BQ	Puttaraju et al., "Messenger RNA Repair and Restoration of Protein Function by Spliceosome-Mediated RNA Trans-Splicing", <i>Mol. Ther.</i> , 4:105-114 (2001)	
	BR	Ram et al., "Cl- Permeability of Human Sweat Duct Cells Monitored with Fluorescence-Digital Imaging Microscopy: Evidence for Reduced Plasma Membrane Cl- Permeability in Cystic Fibrosis", <i>Proc. Natl. Acad. Sci. USA</i> , 86:10166-10170 (1989)	

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	BS	Reisin et al., "The Cystic Fibrosis Transmembrane Conductance Regulator is a Dual ATP and Chloride Channel", <i>J. Biol. Chem.</i> , 269:20584-20591 (1994)	
	BT	Richardson et al., "Strategies for Hepatic Gene Correction", <i>J. Drug Target</i> , 10:133-134 (2002)	
	BU	Riordan et al., "Identification of the Cystic Fibrosis Gene: Cloning and Characterization of Complementary DNA", <i>Science</i> , 245:1066-1073 (1989)	
	BV	Rose et al., "Blood Gas-Analyses in Patients with Cystic Fibrosis to Estimate Hypoxemia During Exposure to High Altitudes in a Hypobaric-Chamber", <i>Eur.J. Med. Res.</i> , 5(1):9-12 (2000)	
	BW	Shen et al., "Impact of Mixed-Backcone Oligonucleotides on Target Binding Affinity and Target Cleaving Specificity and Selectivity by <i>Escherichia coli</i> RNase H", <i>Bioorg. Med. Chem.</i> , 6(10):1695-1705 (1998)	
	BX	Silva et al., "RNA Interference: A Promising Approach to Antiviral Therapy", <i>Trends Mol. Med.</i> , 8:505-508 (2002)	
	BY	Simpson et al., "RNA Editing", <i>Annu. Rev. Neurosci.</i> , 19:27-52 (1996)	
	BZ	Skerra, "Phosphorothioate Primers Improve the Amplification of DNA Sequences by DNA Polymerases with Proofreading Activity", <i>Nucleic Acid Res.</i> , 20:3551-3554 (1992)	
	CA	Smith et al., "Generating a Synthetic Genome by Whole Genome Assembly: φX174 Bacteriophage from Synthetic Oligonucleotides", <i>Proc. Natl. Acad. Sci. USA</i> , 100:15440-15445 (2003)	
	CB	Spector, "Nuclear Organization of Pre-mRNA Processing", <i>Curr. Opin. Cell Biol.</i> , 5:442-447 (1993)	
	CC	Stephenson et al., "Inhibition of Rous Sarcoma Viral RNA Translation by a Specific Oligodeoxynucleotide", <i>Proc. Natl. Acad. Sci. USA</i> , 75:285-288 (1978)	
	CD	Strandvik et al., "Spectrum of Mutations in the CFTR Gene of Patients with Classical and Atypical Forms of Cystic Fibrosis from Southwestern Sweden: Identification of 12 Novel Mutations", <i>Genet. Test.</i> , 5:235-242 (2001)	
	CE	Taton et al., "Scanometric DNA Array Detection with Nanoparticle Probes", <i>Science</i> , 289:1757-1759 (2000)	
	CF	Taubes, "The Strange Case of Chimeroplasty", <i>Science</i> , 298:2166-2120 (2002)	

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CG	Temsamani et al., "Inhibition of in vitro Transcription by Oligodeoxynucleotides", <i>Antisense Res. Devel.</i> , 4:279-284 (1994)	
CH	Teramoto et al., "Factors Influencing Adeno-Associated Virus-Mediated Gene Transfer to Human Cystic Fibrosis Airway Apithelial Cells: Comparison with Adenovirus Vectors", <i>J. Virol.</i> , 72:8904-8912 (1998)	
CI	Thuong et al., "Sequence-Specific Recognition and Modification of Double-Helical DNA by Oligonucleotides", <i>Angwandte Chemie. Intl. Ed. Eng.</i> , 32(5):666-690 (1993)	
CJ	Tsui, "The Spectrum of Cystic Fibrosis Mutations", <i>Trends Genet.</i> , 8(11):392-398 (1992)	
CK	Verkman, "Development and Biological Applications of Chloride-Sensitive Fluorescent Indicators", <i>Am. J. Physiol.</i> , 259:C375-C388 (1990)	
CL	Visich et al., "Complete Screening of the CFTR Gene in Argentine Cystic Fibrosis Patients", <i>Clin. Genet.</i> , 61:207-213 (2002)	
CM	Wang et al., "DNA Bending and Unbending by MutS Govern Mismath Recognition and Specificity", <i>Proc. Natl. Acad. Sci. USA</i> , 100:14822-14827 (2003)	
CN	Ward et al., "Intracellular Turnover of Cystic Fibrosis Transmembrane Conductance Regulator", <i>J. Biol. Chem.</i> , 269:25710-25718 (1994)	
CO	Welsh et al., "Molecular Mechanisms of CFTR Chloride Channl Dysfunction in Cystic Fibrosis", <i>Cell</i> , 73:1251-1254 (1993)	
CP	Wu et al., "Prospects of Chimeric RNA-DNA Oligonucleotides in Gene Therapy", <i>J Biomed Sci.</i> , 8(6):439-445 (2001)	
CQ	Yang et al., "Crystal Structures that Suggest Late Development of Genetic Code Components for Differentiating Aromatic Side Chains", <i>Proc. Natl. Acad. Sci. USA</i> , 100:15376-15380 (2003)	
CR	Yoon et al., "Targeted Gene Correction of Episomal DNA in Mammalian Cells Mediated by a Chimeric RNA.DNA Oligonucleotide", <i>Proc. Natl. Acad. Sci. USA</i> , 93:2071-2076 (1996)	
CS	Zamecnik et al., "History of Anti-Sense Oligonucleotides", N.J., Humana Press, 1-11 (1996)	
CT	Zamecnik et al., "Inhibition of Rous Sarcoma Virus Replication and Cell Transformation by a Specific Oligodeoxynucleotide", <i>Proc. Natl. Acad. Sci. USA</i> , 75(1):280-284 (1978)	
CU	Zamore et al., "RNAi: Double-Stranded RNA Directs the ATP-Dependent Cleavage of mRNA at 21 to 23 Nucleotide Intervals", <i>Cell</i> , 101-25:33 (2000)	

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	CV	Zhang et al., "Failure to Achieve Gene Conversion with Chimeric Circular Oligonucleotides: Potentially Misleading PCR Artifacts Observed", <i>Antisense & Nucleic Acid Drug Developm.</i> , 8(6):531-536 (1998)	
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